

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): A process of removing suspended and dissolved material from fruit and vegetable wastewater comprising the steps of:

adding an inorganic coagulant polymer to the wastewater to create a charge interaction wherein coagulated solid particles are formed from the suspended and dissolved material in the wastewater; and

adding a synthetic organic polymer ~~having an effective molecular size and weight~~ to the wastewater to neutralize all the coagulated solid particles into a plurality of solid particles each having a size ranging from 15 to 150 microns ~~of approximately 50 microns, a weight of approximately 0.99 to 1.004 grams per milliliter, and a viscosity less than 50 centipose per second~~; and

~~filtering the solid particles from the wastewater with a generally tubular microfiltration membrane having a fluid flow of at least 250 GFD~~ passing the wastewater through a microfiltration membrane to separate the solid particles from the wastewater.

Claim 2 (Original): The process as recited in claim 1, wherein the coagulant polymer is selected from the group including: an aluminum compound having a charge of +3, an iron based compound having a charge of +3 and a calcium compound.

Claim 3 (Original): The process as recited in claim 2, wherein the aluminum based compound is selected from the group including: aluminum chloride, aluminum sulfide, poly aluminum chloride and aluminum chlorohydrate.

Claim 4 (Original): The process as recited in claim 2, wherein the iron based compound is selected from the group including: ferric sulfate and ferric chloride.

Claim 5 (Previously Presented): The process as recited in claim 1, wherein the coagulant polymer is added in an amount that is based upon a quantity of TSS, BOD and COD determined to be in the wastewater.

Claim 6 (Original): The process as recited in claim 1, wherein the coagulant polymer is added in an amount that is approximately equal to: $20 * ((\text{BOD Qty} + \text{COD Qty} + (0.35 * (\text{TSS Qty}))) / 1000)$, wherein the BOD Qty, COD Qty and TSS Qty represent the corresponding amounts of BOD, COD and TSS in the wastewater.

Claim 7 (Original): The process as recited in claim 1, wherein the coagulant polymer is a basic coagulant polymer when the pH of the wastewater is low and is an acidic coagulant polymer when the pH of the wastewater is high.

Claim 8 (Original): The process as recited in claim 1, wherein coagulant polymer is added in an amount between 50 to 200 ppm.

Claim 9 (Cancelled)

Claim 10 (Currently Amended): The process as recited in claim 1, wherein the synthetic organic polymer is selected from the group including: DADMAC ~~DADMAC~~, ~~acrylamide~~ and epi-dma.

Claim 11 (Currently Amended): The process as recited in claim 1, wherein the synthetic organic polymer is epi-dma ~~having a low molecular weight~~.

Claim 12 (Currently Amended): The process as recited in claim 1, wherein the synthetic organic polymer is an organic polymeric backbone having a molecular weight in the range of 150,000 to 500,000 atomic mass units ~~of known molecular size and weight~~.

Claim 13 (Original): The process as recited in claim 1, wherein the synthetic organic polymer is added in an amount between a 5:1 and 25:1 ratio of coagulant polymer to synthetic organic polymer.

Claim 14 (Original): The process as recited in claim 1, wherein the synthetic organic polymer is added in an amount between 10 to 50 ppm.

Claim 15 (Cancelled)

Claim 16 (Original): The process as recited in claim 15, wherein the dwell time is between 5 and 30 minutes.

Claim 17 (Original): The process as recited in claim 1, wherein the filtering is performed by a polypropylene filter membrane.

Claim 18 (Previously Presented): The process as recited in claim 17, wherein the wastewater flows through the filter membrane from an outside of the filter membrane to an inside of the filter membrane.

Claim 19 (Original): The process as recited in claim 1, further comprising the step of adding a pH adjuster to the wastewater to adjust the pH of wastewater and to remove sulfates.

Claim 20 (Original): The process as recited in claim 19, wherein the pH adjuster is Mg(O).

Claim 21 (Currently Amended): A process of removing suspended and dissolved material from fruit and vegetable wastewater comprising the steps of:

adding the wastewater to a tank;

determining an amount of BOD, COD and TSS in the wastewater;

adding simultaneously to the wastewater in the tank:

~~an effective amount of an~~ inorganic coagulant polymer to the wastewater creating a charge interaction wherein coagulated solid particles are formed from the suspended and dissolved material in the wastewater, wherein the ~~effective amount of the inorganic coagulant polymer~~ is approximately equal to: $20 * ((\text{BOD Qty} + \text{COD Qty} + (0.35 * (\text{TSS Qty}))) / 1000)$, where the BOD Qty, COD Qty and TSS Qty represent the corresponding amounts of BOD, COD and TSS in the wastewater;

~~an effective amount of a synthetic organic polymer having an effective molecular size and weight~~ to neutralize all the coagulated solid particles into solid particles having a size ranging from 15 to 150 microns ~~having a size of approximately 50 microns, weight 0.990 to 1.004 grams per milliliter, and a viscosity less than 50 centipose per second~~, wherein the amount of synthetic organic polymer added is between a 5:1 and 25:1 ratio of coagulant polymer to synthetic organic polymer; and

~~filtering the solid particles from the wastewater with a generally tubular microfiltration membrane having a fluid flow of at least 250 GFD passing the wastewater through a~~ microfiltration membrane to separate the solid particles from the wastewater.

Claim 22 (Original): The process as recited in claim 21, wherein the coagulant polymer is selected from the following group of compounds: an aluminum based compound having a charge of +3, an iron compound having a charge of +3, and a calcium compound.

Claim 23 (Currently Amended): The process as recited in claim 21, wherein the synthetic organic polymer is selected from the following group of compounds: ~~DADMAC~~, acrylamide DADMAC and epi-dma.

Claim 24 (Currently Amended): A process of removing suspended and dissolved material from a continuous stream of fruit and vegetable wastewater comprising the steps of:
adding continuously a stream of the wastewater to a tank;
adding simultaneously to the wastewater in the tank, an inorganic coagulant polymer and a synthetic organic polymer produce a stream of treated solution containing treated liquid and solid particles having a size ranging from 15 to 150 microns ~~having a size of approximately 50 microns, weight 0.990 to 1.004 grams per milliliter, and a viscosity less than 50 centipose per second;~~
separating the solid particles from stream of treated solution by settling to produce a stream of treated liquid; and
~~filtering~~ passing the stream of treated liquid through a microfiltration membrane ~~through a generally tubular microfiltration membrane having a fluid flow of at least 250 GFD~~ to collect residual solid particles and a stream of filtered liquid.

Claim 25 (Original): The process as recited in claim 24, wherein the coagulant polymer is selected from the following group of compounds: an aluminum based compound having a charge of +3, an iron compound having a charge of +3 and a calcium compound.

Claim 26 (Currently Amended): The process as recited in claim 24, wherein the synthetic organic polymer is selected from the following group of compounds: ~~DADMAC, acrylamide~~ DADMAC and epi-dma.

Claim 27 (Original): The process as recited in claim 24, wherein the step of adding coagulant and synthetic organic polymers has a dwell time between 5 and 30 minutes.

Claim 28 (Original): The process as recited in claim 24, wherein the continuous stream of wastewater has a flow rate and the continuous stream treated solution has a flow rate and the two flow rates are equal.

Claim 29 (Original): The process as recited in claim 24, wherein the continuous stream of wastewater has a flow rate and the continuous stream treated liquid has a flow rate and the two flow rates are equal.

Claim 30 (Original): The process as recited in claim 24, wherein the residual solid particles collected on the filter membrane act as a separate filter that filters out other residual solid particles and as the residual solid particles accumulate on the filter membrane a fluid flow through the filter membrane is not significantly reduced.

Claim 31 (Original): The process as recited in claim 24, wherein the wastewater flows through the filter membrane from the outside of the filter membrane to the inside of the filter membrane.

Claim 32 (Currently Amended): A process of removing suspended and dissolved material from a continuous stream of fruit and vegetable wastewater comprising the steps of:

adding continuously the wastewater to a tank;

adding simultaneously to the wastewater in the tank:

an inorganic coagulant polymer and a synthetic organic polymer to produce a stream of treated solution containing treated liquid and solid particles having a size ranging from 15 to 150 microns ~~having a size of approximately 50 microns, weight 0.990 to 1.004 grams per milliliter; and a viscosity less than 50 centipose per second~~, wherein the coagulant polymer is selected from the following group of compounds: an aluminum based compound having a charge of +3, an iron compound having a charge of +3, and a calcium compound;

separating the solid particles from the stream of treated solution by settling to produce a stream of treated liquid, wherein the synthetic organic polymer is selected from the following group of compounds: ~~DADMAC, acrylamide~~ DADMAC and epi-dma; and

~~filtering~~ passing the stream of treated liquid through a microfiltration membrane ~~through a generally tubular microfiltration membrane having a fluid flow of at least 250 GFD to collect residual solid particles and a stream of filtered liquid, membrane to act as a separate filter for other residual solid particles and as the residual solid particles accumulate on the membrane the fluid flow through the filter membrane is not significantly reduced.~~

Claim 33 (Original): The process as recited in claim 32, wherein the step of adding coagulant and synthetic organic polymers has a dwell time between 5 and 30 minutes.

Claim 34 (Original): The process as recited in claim 32, wherein the continuous stream of wastewater has a flow rate and the continuous stream treated liquid has a flow rate and the two flow rates are equal.

Claim 35 (Cancelled)

Claim 36 (new): A process of removing suspended and dissolved material from fruit and vegetable wastewater as in claim 1, wherein the filtered solid particles contain less than 3% bound water.

Claim 37 (new): A process of removing suspended and dissolved material from a continuous stream of fruit and vegetable wastewater as in claim 32, wherein the filtered solid particles contain less than 3% bound water.

Claim 38 (new): A process of removing suspended and dissolved material from fruit and vegetable wastewater as in claim 1, wherein the microfiltration membrane is a low pressure membrane that operates at pressures less than 24 psi.

Claim 39 (new): A process of removing suspended and dissolved material from fruit and vegetable wastewater as in claim 32, wherein the microfiltration membrane is a low pressure membrane that operates at pressures less than 24 psi.